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COMMUNICATIONS

TWO CASES OF GRANULOMA INVADING THE ORBIT DUE TO AN ASPERGILLUS

BY

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ON December 21, 1924, a man was sent to our out-patient department from another hospital for sarcoma of the orbit. The patient, a male Hindu, aged 35 years, presented the appearance shown in photograph No. 1. A large mass of growth bulged forward from the orbit obscuring the ordinary surface-markings except in the superior temporal quadrant. There was marked proptosis, the eyeball being displaced upwards and outwards so that the cornea lay under cover of the upper lid in the superior temporal region. The skin overlying the mass was infiltrated and adherent, dull red and glazed in parts, with several superficial breaches due to ulceration, and one or two sinuses discharging pus. Exploration of the sinuses with a probe showed that the inner wall and roof of the orbit were partially destroyed and that the growth involved these regions extensively. The nasal fossa was almost occluded, the middle turbinate being enormously enlarged. One or two yellow points showed under the mucous membrane, but there was no extensive ulceration. At first sight the condition might easily have been allowed to pass as a malignant growth with ulceration and secondary infection, but it was unusual and called for further investigation. An accurate history could not be obtained; the patient merely

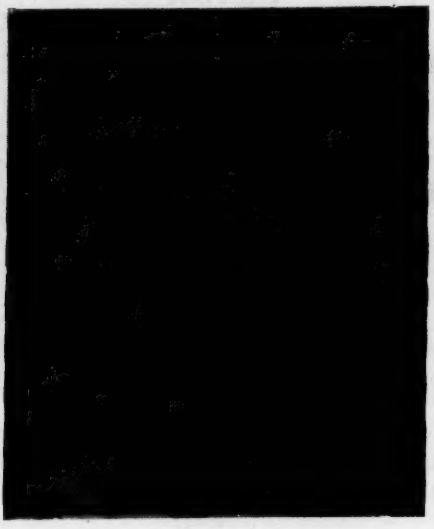


FIG. 1.

FIRST CASE.—Appearance shortly after admission.

FIG. 2.

FIRST CASE.—Appearances under the low power.

asserted that it had been growing for a long time. A portion of tissue was removed for microscopic examination, and cultures taken from the pus, which was moderately thin and uniformly yellow. The pus gave a very mixed growth on ordinary media which did not prove of any importance. The sections showed a vascular granulation tissue studded irregularly with giant cells. Endothelial cells formed the bulk of the framework which was permeated by polymorphonuclear leucocytes. Fibrous elements

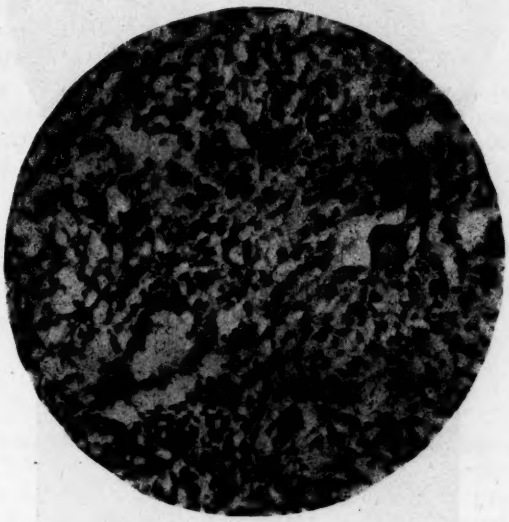


FIG. 3.

FIRST CASE.—Appearances under the high power.

were not prominent (see microphotograph appearances under the low power). Examination with the high power showed extensive endothelial activity with the production of irregular giant cells. Neither acid-fast organisms nor other parasitic agent could be seen. The appearance suggested a chronic irritant with a foreign body giant cell response, and in some respects reminded me of tissue changes which I had previously observed in investigating granulomatous conjunctivitis of the Parinaud type. This determined a prolonged histopathological investigation to discover, if possible, whether an obscure parasite was responsible. Many different methods of staining were tried

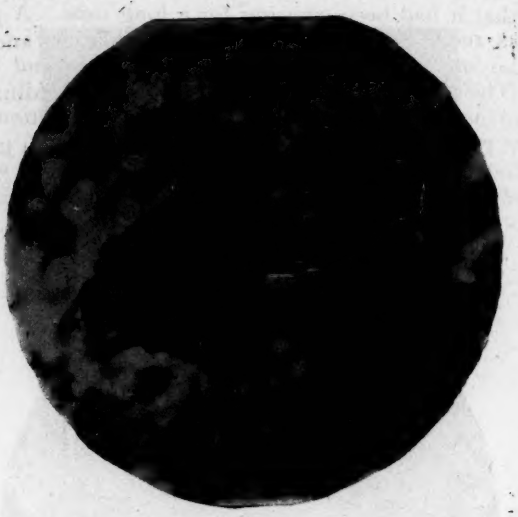


FIG. 4.

FIRST CASE.—Giant cell showing septate mycelial filaments in a giant cell. (Oil immersion lens; Leishman's stain.)

FIG. 5.

FIRST CASE.—Appearance of patient after sixth X-ray exposure.

and numerous sections examined till eventually I noted a characteristic appearance in a giant cell; the unstained outline of a filament of a coarse septate mycelium showed up clearly against the stained protoplasm. Portions of tissue had been submitted to several pathological laboratories, but no satisfactory report as to the nature of the condition was obtained, which serves to show how difficult it was to detect the fungus. On referring my observation to Lt.-Col. Cornwall, I.M.S., Director of the Pasteur Institute of Southern India, he confirmed the presence of mycelial filaments in the giant cells. Subsequently I was able to stain specimens both with Leishman's stain and haematoxylin fit for microphotographic record (see microphotograph), and to obtain pure cultures from the granuloma.

Pending further investigation the patient was put on large doses of potassium iodide and arsenic, but this treatment did not seem to alter his condition. He was then treated by X-rays and slowly and steadily improved (see photograph taken after sixth exposure). This improvement continued until it was considered that the condition might be eventually cured. At this stage the patient decided to leave hospital and could not be persuaded to stay. Some months later he returned in almost the same condition as when first seen. Again he was treated by X-rays, but went away somewhat improved after a few exposures.

Cultivation of the fungus

The tumour was incised through sterilized unbroken skin and a portion removed from its depth with all due bacteriological precautions against contamination. The piece of growth was divided into numerous small fragments and planted out on Sabouraud's medium, solid and fluid, maltose, glucose and glycerine. Tubes of each variety were incubated aerobically and anaerobically. Some thirty tubes were planted and in about twenty a pure growth of the fungus was obtained. The growth was more profuse in the tubes incubated aerobically. The anaerobic glycerine agar tubes showed no growth. The photographs of the growth on solid media, after 72 hours, showed the nature of the original cultures. A dense white felted wrinkled growth spread out all round the tissue and into the depth of the medium. In older cultures the surface of the growth became covered with white down-like hyphae which eventually turned yellow, then greenish and finally brown. In the broth tubes a fluffy growth developed round the tissue at the bottom of the tube while fine eiderdown-like colonies appeared in the clear fluid and on the sides of the tube.

FIG. 6.

FIRST CASE.—Original cultures on Sabouraud's glycerine, glucose, and maltose agar (aerobic) after 72 hours.

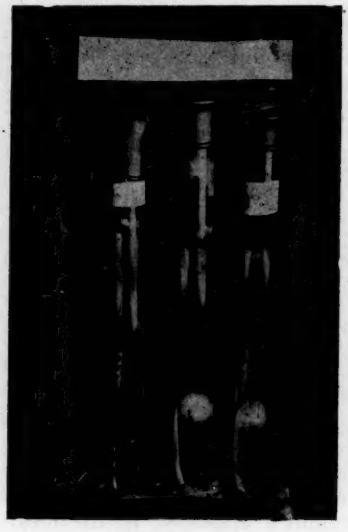


FIG. 7.

FIRST CASE.—Original cultures on Sabouraud's glycerine, glucose, and maltose agar (anaerobic) after 72 hours.

Intravenous inoculation of pigeons with the fungus

These were carried out in the following way. A portion of a week-old growth on glucose agar, both from the surface and the depth of the medium, was emulsified and a few minims inoculated into the axillary vein of a pigeon; it remained healthy. A twenty-four hour glucose broth subculture from an original pure culture of the fungus was shaken up and used to inoculate two pigeons: one received 1 c.c., and the other 0.25 c.c., intravenously. Both remained healthy. Apparently the fungus was non-pathogenic for pigeons. (Unfortunately in the extract of this work given in my Annual Report of the Government Ophthalmic Hospital for 1925 there is a printer's error. In dealing with intravenous inoculations of pigeons it reads: "did produce aspergillosis." It ought to read: "did not produce aspergillosis.") I did not pursue the investigation of the parasite further, but sent original cultures to Lt.-Col. Cornwall, I.M.S., who kindly furnished me with the following note:

"The original cultures sent to me grew from pieces of the tumour sown directly by Major Wright on Sabouraud's maltose, glycerine and glucose agar tubes. The original cultures did not produce conidiophores. Subcultures were at once made on maltose, glycerine and glucose agar tubes having a reaction of +2 on Eyre's scale, that is, the media were slightly acid. Conidiophores formed in all the subcultures. Maltose and glucose suited the fungus better than glycerine. It grew well on potato, but the formation of conidiophores was restricted. The optimum temperature was about 37° C.

Alkalinity and greater acidity than +2 Eyre's scale checked growth. The fundus is aerobic in habit.

Microscopic appearances.

The mycelium formed a snowy white felt on the surface of the medium.

In favourable circumstances conidiophores developed in about 48 hours.

The heads were at first colourless, then became light greenish-yellow, turning later to olive-green and finally to a brownish hue.

After about 14 days incubation, black perithecia of different sizes, from 0.5 mm. to 1 mm. in diameter, appeared in some culture tubes.

On an agar slope the thinner, drier, upper third bore the bulk of the conidiophores; the middle third bore perithecia and fewer conidiophores; the lower third was covered only by white mycelium.

Microscopic appearances.

Mycelium: Smooth, colourless, branched, septate. Diameter of threads 3μ to 5μ.

Conidiophores: Mammillated surface, colourless, septate. Length 4 mm. to 8 mm., diameter 6μ to 10μ.

Sterigmata: Mostly simple, some with a short lateral branch.
Conidia: Spherical, slightly elliptical or ovoid in outline. Surface mammillated, faintly coloured, 3μ to 4μ in diameter.
Perithecia: More or less spherical; blackish-brown, rough surface. Casing hard.

Pathogenicity.

A rabbit was inoculated in the posterior auricular vein with a suspension in saline of conidiophores and conidia derived from a few square millimetres of a glucose agar culture. On the fourth day its respiration was embarrassed and it died on the fifth day. Cultures were made in maltose, glucose and glycerine broth tubes from some of its organs with the following result:

Heart blood	Pure culture of the aspergillus.		
Lung	,,	,,	,,
Liver	,,	,,	,,
Spleen	,,	,,	,,
Kidney	,,	,,	,,

Microscopically the lungs showed signs of lobular pneumonia and the bronchi were full of secretion; the liver was congested; the spleen was apparently normal; the kidneys were spotted with whitish irregular areas both on the capsular surface and deep in the substance.

The aspergillus is pathogenic for the rabbit when its conidia are injected intravenously in a moderate dose.

The aspergillus conforms most closely to the descriptions of aspergillus flavus, but I can find nowhere sufficiently detailed descriptions of this and several other species to be quite certain that it is not an undescribed species.

I have examined many sections of the perithecia but have not yet found one in which ascospores have developed, so I am as yet unable to give a description of the shape and appearance and number of the ascospores.

I enclose a photograph of a section through a conidiophore."

In addition to the above note Lt.-Col. Cornwall furnished me with a photograph of the fructification taken from the subcultures. I subsequently made inquiries as to whether he had utilized pigeons in testing pathogenicity and he kindly gave me the following information:

"Fresh cultures were grown from original spores on October 26, 1925. The fungus grew readily, but formed perithecia in a couple of days instead of two or three weeks as happened in the originals. I gave two pigeons an intravenous injection of spores from the old tubes and two from the new tubes. They remained healthy. I did not try pigeons originally. Either they are immune or the fungus has lost its infective power in culture."

FIG. 8.

FIRST CASE.—Section through a conidiophore × 362.

FIG. 9.

FIRST CASE.—The fructification.

The second case was that of a woman who came to the out-patient department on November 20, 1925, because of two small hard elevations about the size of large peas under the skin above and below the right internal tarsal ligament. She said they had been there for one and a half years, but the history is doubtful. The skin moved over them and there was no obvious inflammation. There was chronic dacryocystitis with complete obstruction. On examination of the nose on the same side there appeared to have been considerable destruction of the mucous membrane about the sphenoidal and posterior ethmoidal regions, where it was replaced by scar tissue. The anterior end of the middle turbinate was oedematous and there was granulomatous tissue in the superior fossa. There was no suppuration, the appearances were rather those of an old granulomatous process which had spread slowly and had for the most part healed leaving extensive scar tissue behind; it suggested a syphilitic condition.

Apparently the process was still in progress towards the anterior part of the superior meatus. The history was not helpful. A curved incision was made on the mesial side of these nodules with the idea of elevating them together with the periosteum and the lacrymal sac, to find out, if possible, whether they were connected in any way with the sac. The periosteum was elevated and it was found that these two nodular growths abutted on the nasal processes of the frontal bone and superior maxilla. They appeared to be incorporated with the periosteum and the underlying bone was rough. They were continuous with indurated tissue extending into the nasal cavity. On cutting into one of them it was found to be solid in nature. A small fragment was removed and when examined histopathologically was recognized to be very similar in structure to the tissues obtained from the above-mentioned case, so much so, that I did not hesitate in diagnosing a granuloma of fungoid origin (see photographs). It took me some time, however, to find the aspergillus in the giant cells as even with previous experience of staining for these parasites it was only with the greatest difficulty that a characteristic appearance was obtained. Meanwhile, however, pure growths had been obtained on a number of tubes by taking small fragments from the depth of the two nodules and planting tiny portions on tubes of Sabouraud's medium. The nodules in this case showed no inclination whatever to necrosis or suppuration, and were evidently very slow growing. The patient was sent for X-ray treatment, but did not appear to improve in the same way as the first case. What was left of the nodules remained practically the same size after the X-ray exposures. The woman, however, did not stay long enough for us to reach a final decision on this point. She took her discharge and unfortunately we have not

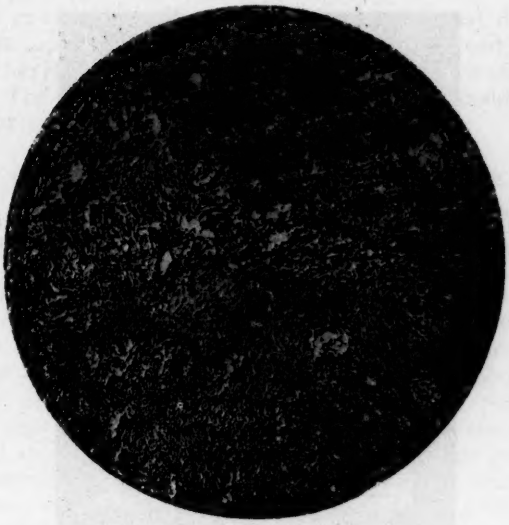


FIG. 10.

SECOND CASE.—Appearances under the low power.

FIG. 11.

SECOND CASE.—Appearances under the high power.

FIG. 12.

SECOND CASE.—*Original* cultures on Sabouraud's glycerine, glucose, and maltose agar (aerobic).

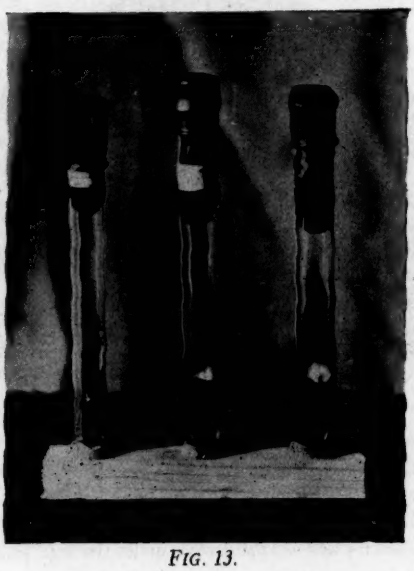


FIG. 13.

SECOND CASE.—Original cultures on Sabouraud's glycerine, *glucose, and* maltose agar (anaerobic).

been able to trace her. One got the impression that the nodules formed the anterior extension of a process which had started in the nasopharynx and slowly advanced leaving a trail of cicatricial tissue. The dacryocystitis was secondary to pressure of the nodules on the duct.

Observations on pathogenicity, second case

On January 16, 1926, a large number of tubes of Sabouraud's medium was inoculated with small portions of the tissue which had been removed with all due precautions to ensure sterility. These were despatched to the King Institute, Guindy, for incubation and report. Practically all the tubes showed a pure culture of fungus. They were indistinguishable from the growths seen in the first case. The appearance is shown in the photographs. From the original tubes I made subcultures on Sabouraud's glycerine agar and after incubation for 96 hours these were used for animal inoculation. A suspension of the surface growth was made in sterilized saline. The saline was run into the tube and the surface of the medium stirred up with a glass pipette. Possibly some of the deep growth in the medium may have been included in the suspension, but for the most part it contained green powdery surface growth. Two rabbits and four pigeons were inoculated. They each received one c.c. of suspension intravenously, but all remained alive and healthy. Evidently pigeons and rabbits were not affected by massive intravenous inoculations of surface growth suspension from 96-hour old subcultures. This does not, however, disprove the pathogenicity of the fungus for rabbits and pigeons. Suspensions of the original growths or even old subcultures or suspensions definitely including deep growth into the medium might have given positive results. It was impossible for me to undertake further work with the fungus here and as Lt.-Col. Cornwall had left India, I requested Lt.-Col. J. Cunningham, I.M.S., Director of the Pasteur Institute, Kasauli, to take over some of the original growth from both cases and try to work out the fungus should he have time to do so. Subsequently tubes were transferred to the Tropical School of Medicine and Hygiene, Calcutta, where Major H. W. Acton, I.M.S., is actually engaged in research in connection with pathogenic moulds and fungi and he hopes that he may be able to give this particular fungus a definite position.

References to literature

The literature on the subject of the aspergilli is very extensive and confusing. Authors vary considerably in their ideas as to what may be included under the term "Aspergillosis." As

Lt.-Col. Cornwall wrote when I asked him to work up my cultures: "the genus has not been reduced to order; so classification of species is a matter of some difficulty." He furnished me with over 140 references from the library of the Pasteur Institute of Southern India and one can safely say that none of them dealt with granulomatous changes at all comparable with those met with in my cases. In addition to the above references I have to thank the librarian of the Royal Society of Medicine for looking up the subject and furnishing me with extracts of articles bearing upon it. As a result of his extensive search very little was found on human tumour formation due to aspergilli. It would serve no useful purpose to quote at length the number of references gone through; these will no doubt be dealt with in the proper place when the fungus is investigated. In going through the ophthalmological literature at my disposal I found only one reference to a condition which appears to be similar to the cases described above. Dalmeyer described an inflammatory growth involving the orbit and base of the brain, discovered post-mortem. (*Zeits. f. Augenheilk.*, Bd. 31, S. 420.) I have not consulted the article in the original. The bulk of the reports on aspergillus deal with the condition as it forms a surface growth on skin or cornea, in the external auditory meatus, the nasal sinuses, air passages and lungs (pseudo-tuberculosis), or as small deposits in the internal organs. Obici in a long series of extracts from various authors quotes Rupert Boyce's case in which the apex of the right lung was involved.

The bronchi were invaded and there were nodules in the lung which showed "numberous macrophages which submerged and enclosed the hyphae." (Obici, Augusto: *Ueber die pathogenen Eigenschaften des Aspergillus fumigatus—Beitr. z. path. Anat. u. z. allg. Path.*, Jena, 1898, Bd. XXII, SS. 197-237.) This is the only mention I can find suggestive of the cellular response to the fungus as seen in my cases. In similar infections, however, this has been noted. In blastomycotic dermatitis (Gilchrist) the fungus responsible has been described in the giant cells. (Dowling and Elworthy: *Proceedings of the Royal Society of Medicine*, Vol. XIX, No. 2, December, 1925; Section of Dermatology, page 8.) Apart from membranous and ulcerative lesions of the throat and nose, bronchi and lungs, eye and ear, and nodular deposits in the internal organs, large granulomata resembling Madura foot have been described. For example Nicolle and Pinoy describe a condition clinically very similar to the ordinary mycetoma met with in South India due to actinomyces (discomyces). Nicolle and Pinoy: *Sur un cas de mycétome d'origine aspergillaire observé en Tunisie. Arch. de Parasitol.* T.X, pp. 437-440, 457-8, 1905.) They isolated a fungus different from

discomyces madurae (Vincent) which was investigated by the Pasteur Institute, Tunis, and pronounced to be aspergillus (sterigmatocystis) nidulans. A description of the histopathology is not given. They considered that possibly aspergillus (sterigmatocystis) nidulans, or some closely allied fungus may be the pathogenic agent in mycetomata not due to discomyces. This may be so, but there are other workers in this field who consider that aspergillus may be a secondary implantation on a primary discomycotic condition. In very many articles dealing with aspergillosis, A. fumigatus is incriminated; sometimes apparently without very much reason, as diagnostic characters are not given. Even if they were, it would perhaps be difficult to place such fungi as the characters of the group have been insufficiently worked out. It is certain, however, from the literature that fungi of the genus aspergillus are responsible for both saphrophytic and parasitic invasions of man and animals and that they may cause not only surface infections but definite granulomata. There can be no doubt from the histopathology of the granulomata in my cases that the aspergillus was a true parasite and almost certainly acting primarily. In the second case there was no evidence whatever that there were organisms of any other sort present in the tissue. In the first case there were bacilli and cocci, but they were in all probability those of a secondary infection.

My thanks are due to Mr. H. Hawley of the King Institute of Preventive Medicine, Guindy, for the microphotographs, and to the South Indian Branch of the British Medical Association for meeting the expenditure associated with the animal experiments.

THREE CASES OF EMBOLISM OF A RETINAL ARTERY

BY

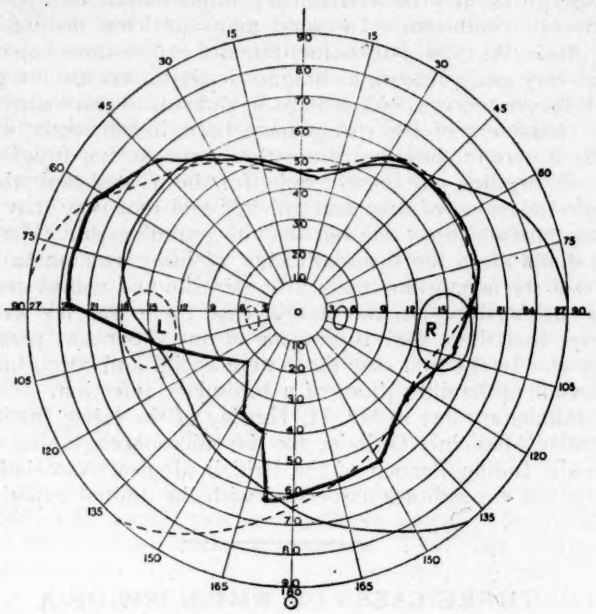
T. HARRISON BUTLER

BIRMINGHAM

C.J.W., male, aged 21 years, came to the Birmingham Eye Hospital on December 7, 1926, and was examined at 10 a.m. He stated that at 7.40 a.m. the vision of the left eye suddenly failed and that for some time he had not the slightest perception of light. In about half an hour he began to see again, but even now the sight is not normal. He suffers from morbus cordis.

The vision of each eye is 6/6. There is a quadrantic notch in the field of vision involving the lower temporal aspect, as shown in the chart.

The superior artery is full of blood as far as the first fork. From here on the two branches are completely empty for about one-quarter disc diameter; beyond this area the blood column is segmented. When the globe is pressed with the finger there is pulsation as far as the first fork of the artery but not beyond. The superior nasal vein has a white filmy sheath, the so-called "peri-



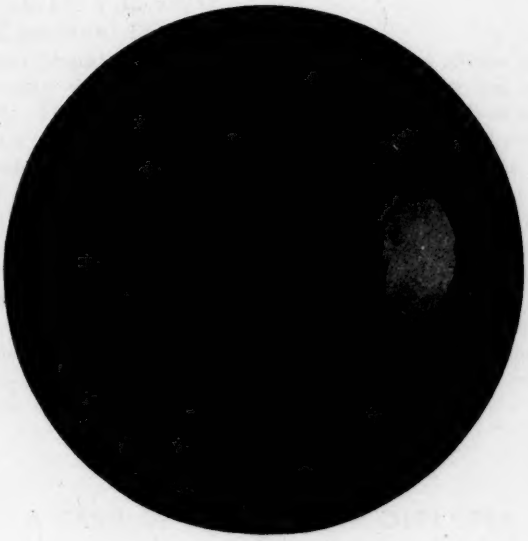
CASE 1.

phlebitis." There is some general retinal oedema especially in the macular region, but there is no definite cherry spot.

The patient was at once admitted and paracentesis was performed with a Ziegler knife and the eye gently massaged. A capsule of amyl nitrite was administered. Five hours later the patient was shown to the Midland Ophthalmological Society. An astonishing change had taken place. The previously empty artery was now full and the segmentation had disappeared. Careful search revealed another block in the circulation far away in the periphery of the field. Here the appearance was exactly similar to that seen at the site of the original obstruction. Four days later this obstruction could no longer be seen and the patient was discharged.

Vision was 6/6 and no change had taken place in the field which still showed the quadrantic defect. This was present unchanged on December 17.

The sequence of events is obvious. At first a complete obstruction of the central retinal artery was present. The embolus passed on to the site where we first saw it, and finally forced its way to a peripheral fork. The appearance when first examined is shown



CASE 1.

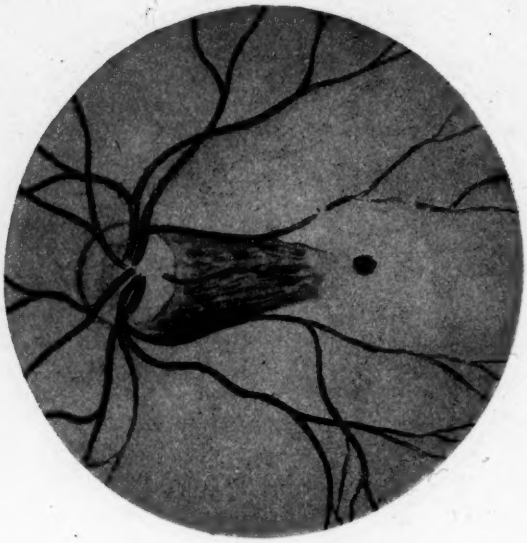
in the drawing of the fundus which was elaborated from a rough sketch made at the time. At the end of January the condition is unchanged. The patient has normal central acuity but is still conscious of the defect in the field which will probably be permanent.

Case 2

T.J.D., male, aged 31 years, came to the Birmingham Eye Hospital, February 15, 1927. He stated that at 10 p.m., on February 14, he felt giddy and the sight of the left eye suddenly went.

On examination it was found that the vision of the left eye was reduced to perception of movement on the temporal side only.

Ophthalmoscopic examination showed that the whole retina was oedematous with the exception of a triangular area extending from the vertical diameter of the disc as a base to a spot near the macula as the apex. There was a well-marked cherry spot at the actual macula. The normal retinal area was fed by a cilio-retinal artery. The arteries were not obviously small and there was no evidence of segmentation of the blood column. The patient was admitted



CASE 2.

and paracentesis of the anterior chamber was performed. He was given a capsule of amyl nitrite to smell.

On February 22 the contrast between the normal and the oedematous retina was more obvious, there was more oedema. There was a retinal haemorrhage from the artery bounding the lower side of the normal retinal triangle. March 26: the retina is now normal in appearance with the exception of some white dots in the area fed by the cilio-retinal artery. The vision is not improved and the disc is becoming atrophic. Examination of the heart revealed the presence of a soft blowing systolic murmur at the apex.

The appearance of the retina when first examined is shown in the drawing.

Case 3

This case was a private patient and was interesting in that the embolism produced a sharply-defined altitudinal macular hemianopsia.

Mrs. A. H. C., aged 60 years, complains that yesterday she suddenly noted a blur over the right eye and that now the upper half of the field of vision is blind. Two years ago she suffered from a painful thrombosis of a varicose vein in the left leg.

V.R.=6/18; V.L.=6/12.

Blood pressure, 180 systolic.

The peripheral field of vision is normal and shows no trace of hemianopsia when tested with a 2 mm. object on the Lister perimeter. The central field was mapped out on the Bjerrum screen. There is a total paracentral scotoma almost semicircular in outline. It is bounded below by the horizontal diameter of the chart and above it almost accurately fills the 15 degree circle.

There is a bright embolus just beyond the first fork of the inferior temporal artery blocking the branch to the macular region. The blood column in the artery distal to the embolus is segmented and motionless. There is no retinal oedema.

Nineteen days later the acuity of the right eye had sunk to 6/60. The embolus was still visible. There was then segmentation of the blood column and the stream could be seen slowly moving on. Treatment was refused.

A CASE OF MONOCULAR DIPLOPIA

BY

T. HARRISON BUTLER

BIRMINGHAM

A. G., male, aged 54 years, came to the Coventry Hospital on August 16, 1927, complaining of double vision in the right eye.

He stated that thirty years ago a file which he was using hit the right eye and scratched the cornea. No trace of any opacity or corneal irregularity was found.

The diplopia began ten years ago. Before this time he was a marksman in the Volunteers, and had perfect acuity in the right eye as far as he knew. Great difficulty was experienced in getting an accurate retinoscopy because there was a dark band across the pupil during the movement of the shadow.

With : −1.0D. sphere and +4.0D. cylinder axis 95° V.=6/60.

A double "E" is clearly seen one exactly over the other in such-wise that the lower limb of the upper "E" and the upper limb of the lower "E" coincide.

Careful examination with Placido's rings failed to demonstrate the slightest irregularity of the cornea, which was found with the slit-lamp to be absolutely normal.

The cause of the diplopia was clearly shown by an examination of the lens with the slit-lamp. A large fluid-cleft lay in the horizontal diameter right across the lens. It occupied the whole depth of the cortex being bounded before by the subcapsular line and behind by the surface of the adult nucleus. The rest of the cortex was normal except for a few striae. This cleft formed an optical opacity dividing the lens into an upper and a lower segment. These acted independently forming an upper and a lower image upon the retina.

TSCHERNING'S PHOTOMETRICAL GLASSES*

BY

DR. W. A. WILLE

SEMARANG, JAVA

THE different methods of examination of the light-sense and of the adaptation for light, which the ophthalmologist hitherto has had at his disposal, are rather troublesome and incomplete. The most exact instrument is Förster's photometer which in its original form consists of a black, light-tight camera, in the front wall of which are made two holes, for the right and the left eyes respectively, through which the patient looks into the camera. On the inside of the opposite wall is fitted a white square, which is illuminated by the flame of a stearine candle, fixed on the outside of the front wall, and surrounded by a screen. The light enters the camera through an Aubert's diaphragm, by means of which the illumination is measured. The object of the examination is to secure the least illumination, by which the white square inside the camera can be observed. The examination must take place in a perfectly dark room. We have also other instruments constructed according to the same principles, such as the adaptometer of Nagel and Piper.

Another method is to take the patient into a perfectly dark room, in the shutter of which has been fixed a big Aubert's

*See also *Brit. Jl. of Ophthal.*, Vol. X, p. 231, 1926.—ED.

diaphragm. The vision is then examined in the usual way, but by decreasing illumination. The quantity of light is measured by means of the diaphragm in the shutter.

Seeing that these different methods are rather troublesome and require a perfectly dark room, the ophthalmologist will often satisfy himself with an estimation: By means of shutters or curtains the daylight is partly shut out and then the vision of the patient is compared with that of somebody with normal light sense. In this way we can manage rather easily, but the result is of course not quite satisfactory.

Professor M. H. E. Tscherning by means of his photometric glasses has provided us with an instrument that is easy to manage and also gives a surprisingly perfect and exact result. The instrument consists of a series of plain dark glasses, which can be fixed in a light-tight frame. These glasses are constructed in such a way that No. 1 lets through 1/10 of the light; No. 2, 1/100; No. 3, 1/1,000; and so on till No. 10. Thus the number of the glass indicates how much light it lets through according to the following formula.

$$\text{No. X} = \frac{1}{10^x}$$

If we take for instance No. 5, this glass will let through

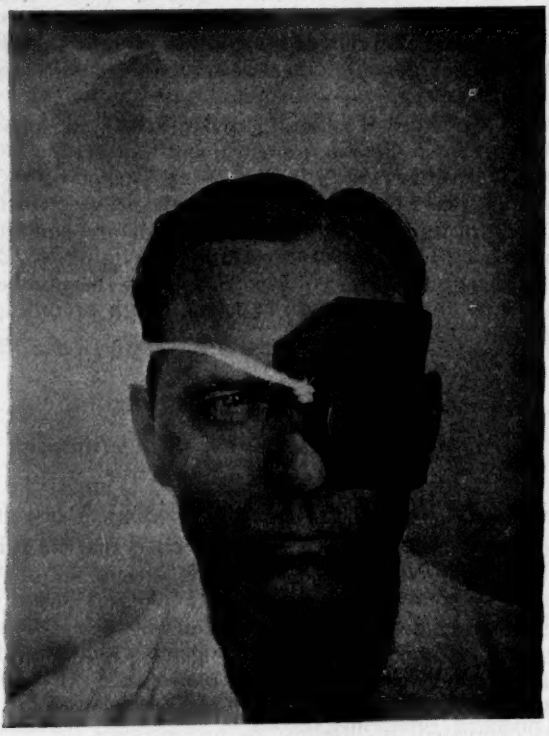
$$\frac{1}{10^5} \text{ of the light thus } \frac{1}{100{,}000}$$

The great advantage of this construction is that we can simply add the numbers. No. 2 + No. 4 are equivalent to No. 6. We have thus here a simple and exact standard, analogous to our standard for refracting glasses. Just as the refracting power is expressed in "dioptres" (D.) so Tscherning proposes to express the light-absorbing power of his glasses in "photopters" (Ph.); and just as we speak about the "amplitude of accommodation" of the eye, which is expressed in dioptres, so he proposes the new name: "amplitude of adaptation," which is expressed in "photopters."

The frame consists of two very short tubes. The one is applied light-tight in front of the eye by means of two narrow bandages. For hygienic reasons a piece of black silk-paper with a hole in it for the eye, is placed under the frame. In the second tube the glasses are fixed, and then it is pushed into the tube in front of the eye. The figure shows the appearance of the instrument. During the examination the other eye is covered.

As a source of illumination the flame of a stearine candle is used at a distance of half a metre. The room need not be dark but the light must not be too strong. The patient is seated with his

back towards the windows. We now proceed to find the darkest glass, with which the patient can just see the candle flame. The number of this glass corresponds with the amplitude of adaptation. If for instance the number of the glass be 8, then the amplitude



of adaptation is also 8 photopters. As is seen the examination is very simple and does not exact very much from the intelligence of the patient. I have applied it to a Javanese boy, aged 6 years, suffering from hemeralopia, and found without much difficulty the amplitude of adaptation, which was 4.5 photopters.

A differentiation must be made between the primary adaptation which takes place within 10 to 15 minutes, and the secondary which takes place within half to three-quarters of an hour. About the power of these two functions Professor L. Heine writes in Axenfeld's *Lehrbuch der Augenheilkunde*, p. 165, 1915, as follows:

"Diesen Teil der Adaptation wollen wir die primäre Adaptation nennen; sie beginnt momentan nach Eintritt in einen dunklen Raum, und erreicht ihr Maximum nach 10-15 Minuten.

"Die Empfindlichkeits-steigerung des Auges betragt in des höchstens das 50-fache vom Ausgangswert.

"Nunmehr, d.h. 10-15 Minuten nach Eintritt in einen absolut dunklen Raum, tritt eine rasche Empfindlichkeits-zunahme des Auges fur minimale Lichtreize ein, welche nach $\frac{1}{2}$-$\frac{3}{4}$ Stunde mindestens das 500-fache des Ausgangswertes erreicht. Diesen Teil der Adaptation nennen wir die sekundäre Adaptation."

When we now investigate the results we have attained with the photometric glasses we must be prepared for a surprise. In the prospectus accompanying the photometric glasses we read as follows:

"Die Adaptationsbreite des normalen Auges ist von 9-10 Ph.; nach einer halbstündlichen Adaptation kan die Mehrzahl die Flamme mit No. 10 sehen." (The breadth of adaptation of the normal eye is from 9-10 Ph.; after half an hour's adaptation the majority can see the flame with No. 10.) From this it does not appear clear how great the primary amplitude of adaptation of a normal eye is. I have found it to be 8 photopters. Instead of the two figures of Heine, 50 and 500, we get here 100,000,000 and 1,000,000,000 or even 10,000,000,000. How is this possible? The explanation is simple enough, and consists in the fact that in the examination with Förster's photometer the illumination is already enormously diminished before the examination takes place. The patient is first taken into a perfectly dark room and it takes a certain amount of time before he gets into the right position in front of the photometer. Then he must look at a not very big white square illuminated by a fractional part of a candle flame only. This is "der Ausgangswert." Thus it is only the very last end of the amplitude of adaptation, which in this way is secured, while Tscherning's photometric glasses secure the full amplitude of adaptation, showing at the same time, how perfect an optical instrument the human eye is also in this respect.

It is certainly a fortunate thought of Tscherning to measure the light in this way; but the accomplishment of his plan has been very difficult and has required much work and patience. To graduate a smoke-coloured glass-mass so exactly, must certainly be considered an impossibility; and besides that, such a glass will not allow the different rays to pass in the same proportion. Through a very dark smoke-glass we therefore see a candle flame coloured red. The object is attained by means of plates of gelatine, which can be stained very exactly. These plates are then fixed by means of Canada balsam between two discs of plate

glass. The glasses are constructed in such a way that the separate rays, notwithstanding the great difference of wave length, are allowed to pass nearly in the same proportion; thus the colour of the object is not changed.

In a lecture delivered by Tscherning in Copenhagen in December, 1924 (Ugeskrift for Laeger, 1925, No. 9, Copenhagen), he points out that a new method of examination will usually give rise to quite a harvest of scientific results, and he predicts that this also will be the case with regard to the photometrical glasses. May it be so.

The glasses are made by Fischer, whose ability and perseverance have contributed to the success of the work. From him the glasses can be ordered. There are two collections available, *viz.*: (1) the complete collection; and (2) the smaller collection. The prices are 200 and 85 Danish *kroner* respectively. The collections also contain glasses for the testing of the colour sense. The address is:—N. Fischer, Fabrikant, 32 Aaboulevarden, N. Copenhagen.

ANNOTATION

The Annual Report of the Metropolitan Asylums Board for 1926-1927 (Children's Section) gives a very interesting account of the success obtained in making efficient citizens from damaged material, and, what is even more important, of the measures adopted to prevent such damage occurring. Treacher Collins points out in his report on the treatment of eye diseases at White Oak that the establishment of schools for the isolation of contagious eye disease has served to stamp out trachoma from the Poor Law schools of London. As a similar policy has now been adopted in the London County Council schools, it is to be expected that, in the course of time, trachoma will disappear from these schools in the same way. As we noted last year (*Brit. Jl. of Ophthal.*, Vol. X, p. 651) the accommodation no longer needed for contagious disease is now utilized for such conditions as interstitial keratitis. Admission can be obtained for children under 15 years of age through the Board of Guardians anywhere in Great Britain, and in the London County Council area through the school doctor. It is to be hoped that ophthalmic surgeons will make full use of the facilities afforded in the treatment of this class of case which is notoriously unsatisfactory in the hospital out-patient department.

INTERNATIONAL OPHTHALMOLOGICAL COUNCIL

THE following was the opening statement of the Chairman of the Anglo-American Convening Committee at Scheveningen, Mr. E. Treacher Collins, on July 12, 1927.

Friends and Colleagues:

Two years ago, at a general meeting of a Convention of English-Speaking Ophthalmological Societies held in London, there was a strongly-expressed desire for the re-establishment of the Periodic International Ophthalmological Congresses. I, as President of that Convention, was asked to appoint an Anglo-American Committee of five to investigate and see what could be done in the matter.

I invited to act with me on this committee our veteran colleague, Dr. Edward Jackson of Denver, Illinois, who, I regret to say, has been prevented from being with us to-day; Dr. G. de Schweinitz of Philadelphia, who has had a wide experience of international ophthalmological affairs and who is willing to render still further assistance; Sir John Parsons, the President of the Ophthalmological Society of the United Kingdom, and Mr. Leslie Paton, to whose energy we are largely indebted for the arrangements of the present Conference.

After some consideration and correspondence this committee decided to invite each country, through its National Ophthalmological Society or in some other way, to send two delegates to attend a Conference. These invitations have met with a cordial response from all quarters, and that is how we have come together in this hospitable country of Holland this afternoon.

It has been well said that the success of a society depends on the recollection of the great things its members have done together in the past, and on the will to accomplish new things in the future. I think it may be justly claimed that the International Ophthalmological Congresses have established great traditions. It is one of the oldest, if not the oldest, International Medical Association, having been first established in 1857 mainly by the energy and foresight of M. Warlomont, the editor of the *Annales d'Oculistique*.

The first meeting held in Brussels was attended by some 200 oculists from all parts of the world. It was in the golden days of ophthalmology, when the first fruits of Helmholtz's great invention of the ophthalmoscope were begining to be gathered in. von Graefe was there and delivered an impromptu and

thrilling account of his investigations of glaucoma and of his newly-discovered treatment of it by iridectomy. Donders was also present, having recently formulated for all time the fundamental principles of sight-testing and of correction of errors of refraction.

It was originally arranged that the sessional meetings of the Congress should take place every fourth year at a different town, the place of the next meeting being determined before the close of each session. Wars, pestilence, and other unforeseen events have, however, from time to time prevented this orderly course of procedure.

The second meeting was held in Paris in 1862. It was then arranged that the third meeting should be held in Vienna in 1866, but owing to political complications and the outbreak of cholera it had to be postponed, and was ultimately held in Paris in 1867. von Graefe, who presided over this meeting, invited the next Congress to assemble in Berlin in 1871, but before that time had arrived his too short and brilliant career had ended and war had broken out.

It was George Critchett who then took the initiative and invited the fourth Congress to meet in London, where a very successful session was held in 1872 with Donders in the Chair. At its close Dr. Williams of Cincinnati, U.S.A., presented an invitation for the Congress to meet in New York in 1876. There was at first some hesitation in accepting it on account of the distance from Europe. Dr. Williams, however, assured the Congress that under favourable conditions as regards wind and weather the voyage could be accomplished in ten days, and fifty European members ultimately journeyed to New York. If at some future date a fellow countryman of Dr. Williams presents us with a similar invitation he will probably be able to assure us that the journey to the United States by air, wind and weather permitting, will take only 48 hours.

In 1880, the sixth Congress was held in Milan and presided over by Dr. Quaglino. For some reason, I do not know what, a long interval then elapsed before the next meeting which was not until 1888, when, mainly through the exertions of Dr. Otto Becker, it assembled in Heidelberg. At that meeting a discussion took place as to whether the periodical International Ophthalmological Congresses should be continued or whether they should become merged in the General International Medical Congresses, which usually provide an Ophthalmological Section. The continuation of the Special Ophthalmological Congresses was strongly urged by Donders, who presided, and was ultimately agreed to.

Of the eighth Congress, held in Edinburgh, some of us here to-day were members. Dr. Argyll Robertson presided and in the course of his opening address sagely remarked:

"International distrust is most generally founded upon want

of knowledge, and everything that tends to bring us into closer relationship with one another cannot but engender a spirit of mutual respect and esteem."

There are several of us who will recollect the ninth meeting of the Congress in this country at Utrecht in 1899, at which the personality of the revered Snellen pervaded over the whole of our proceedings.

From that time onwards, without any alteration in the written regulations, it seems to have been generally agreed that an interval of five years instead of four should be allowed to elapse between the successive meetings, so that the tenth meeting was held at Lucerne in 1904, and the eleventh at Naples in 1909.

The twelfth meeting was planned to take place at St. Petersburg in 1914, and, though not held, its Comptes rendus with the opening papers of the discussions, and other communications, have been printed and circulated to the members.

Such then, gentlemen, is a very brief statement of what our forefathers accomplished in the way of International mutual aid for the promotion of ophthalmology in the past. It is now for this Conference to decide if we are willing to work together and accomplish new things in the future, in the interests of science and for the relief of suffering.

Fund of International Ophthalmological Council

FIRST LIST

[The Treasurer of the International Ophthalmological Council wishes to make it clear that Great Britain, Canada, and the United States are the only countries in which an appeal for subscriptions has been sent out. Owing to the Anglo-American Committee having been constituted for some time, the delegates were able to take early action. Ophthalmologists in other countries have not yet been asked to subscribe, but it is intended to ask for subscriptions from all the countries represented at the Conference held in July. At the present time approximately £700 has been gathered.]

SOCIETIES, INSTITUTIONS, ETC.

Danish Ophthalmological Society.
German Ophthalmological Society.
Hungarian Ophthalmological Society.
Midland Ophthalmological Society.
Montreal Ophthalmological Society.
Swedish Ophthalmological Society.
British Journal of Ophthalmology.
Royal London Ophthalmic Hospital.

CANADA.

Byers, W. Gordon M.
Kerry, Richard.
Johnston, Kenneth B.
McAuley, A. G.
MacMillan, J. A.
Rosenbaum, J.
Tooke, Fred.

CZECHO-SLOVAKIA.

Elschnig, A.

DENMARK.

Bentzen, Chr. F.
Lundsgaard, K. K. K.

UNITED STATES OF AMERICA.

Alger, Ellice M.
Benedict, Wm. L.
Berens, Conrad.
Black, Nelson M.
Brown, E. V. L.
Bruns, Henry Dickson.
Burke, John W.
Butler, Wm. K.
Calhoun, F. P.
Capron, F. P.
Clapp, C. A.
Cohen, Martin.
Davis, A. Edward.
Derby, George S.
Dickson, Hy.
Dunphy, E. B.
Ellett, E. C.
Friedenwald, Harry.
Friedenwald, Jonas.
Gradle, Harry S.
Haden, Hy. C.
Harrower, David.
Heckel, Edward B.
Heed, Chas. R.
Hill, Emory.
Holloway, T. B.
Holzer, Wm. F.
Howe, Lucien.
Jackson, Edward.
Jervey, J. W.
Key, Ben Witt.
Lancaster, Walter B.
Lippincott, J. A.
Luedde, W. H.
McCool, Jos. L.
McGuire, Hunter H.
Marlow, F. W.
May, Chas. H.
Parker, Walter R.
Peter, Luther C.
Pfingst, A.
Posey, Wm. Campbell.
Post, M. Hayward.
Prince, Alex. L.
Quackenboss, Alex.
Ring, G. Oram.
Rushmore, J. D.
Sattler, Robert.
Schweinitz, George E. de.
Schwenk, Peter N. K.
Scarlett, Hunter W.
Schoenberg, Mark J.
Shumway, Edward A.
Smith, Dorland.
Smith E. Terry.
Thomson, Edgar S.
Tooker, C. W.
Török, Ervin.
Tyson, H. H.
Vail, D. T., Snr.
Veasey, C. A.
Verhoeff, F. H.
Wescott, Cassius D.
White, Jos. A.
Wilder, Wm. H.
Wilmer, W. H.
Woodruff, F. E.
Woods, Alan C.
Woods, Hiram.
Zentmayer, Wm.

GREAT BRITAIN.

Adams, P. H.
Alabaster, E. B.
Anderson, W. A.
Ap Thomas, G. A.
Attlee, John.
Ballantyne, A. J.
Barton, M. H.
Beaumont, W. M.
Beedham, H. W.
Bennett, H. Percy.
Bickerton, Thos. H.
Brewerton, Elmore.
Bride, T. Milnes.
Burdon-Cooper, J.
Butler, T. Harrison.
Buzzard, Sir E. Farquhar
Bywater, H. H.
Caleb, C. C.
Cargill, L. Vernon.
Carr, T. E. A.
Clarke, Ernest.
Clegg, J. G.
Cobbledick, A. S.
Collins, E. Treacher.
Conway, J. A.
Cooke, Arthur.
Corbett, W. J.
Coulter, R. J.
Cresswell, T. H.
Cridland, Bernard.
Cross, F. Richardson.
Cruise, Sir Richard.
Davenport, Robert.
De Courcy, T. L.
Dickson, R. H.
Doyne, P. G.
Elliot, Lt.-Col. R. H.
Eminson, C. F.
Evans, J. Jameson.
Fergus, Freeland.
Fisher, J. Herbert.
Fleming, N.
Galloway, A. R.
Gilmour, H. M.
Giri, D. V.
Glegg, Norman.
Gorst, P. E.
Goulden, Chas.

GREAT BRITAIN—*continued.*

Gray, Egerton.	Lawson, Sir Arnold.	Ramsay, Maitland.
Green, E. Collier.	Levy, A. H.	Ridley, N. C.
Greene, A.	Lister, Sir W. T.	Roberts, B. H. St. Clair.
Greeves, R. A.	Lyle, H. W.	Ross, James A.
Griffith, A. D.	MacCallan, A. F.	Rowan, J.
Griffith, A. H.	MacCulloch, J. D.	Russell, J. S. Risien
Grimsdale, H.	Macdonald, P.	Rutledge, W. E.
Gruber, R.	MacGillivray, Angus.	Sinclair, A. H. H.
Gunning, C. J. H.	MacInnes, N.	Smith, Lt.-Col. Hy.
Hanson, Sgn. Capt. R. J. E.	Mackay, D. M.	Smith, Priestley.
Harries-Jones, E. H.	MacKay, George.	Snowball, Thomas.
Hawthorne, C. O.	MacLehose, N. M.	Souter, W. Clark.
Henderson, E. E.	McMullen, W. H.	Spicer, W. T. Holmes.
Henderson, T.	MacRae, A.	Stevenson, Edgar.
Hepburn, Malcolm L.	Mann, Ida.	Thomson, Ernest.
Herbert, Lt.-Col. H.	Maxwell, E. M.	Thomson, H. Wright.
Highet, H. C.	Mayou, Stephen.	Tomlinson, J. H.
Hine, M. L.	Menzies, J. A.	Traquair, H. M.
Hird, R. B.	Miller, G. V.	Tuckett, Ivor L.
Hosford, Stroud.	Moore, R. Foster.	Usher, C. H.
James, R. R.	Morgan, O. Gayer.	Valentine, J. A.
Jaques, R.	Neame, Humphrey.	Walker, C. H.
Joseph, H. M.	Ormond, Arthur.	Wallace, W.
Juler, F.	Parker, H. G.	Wharton, J.
Kiep, W. H.	Parsons, Sir J. Herbert.	White, Harry V.
Kirkpatrick, Lt.-Col. H.	Paton, Leslie.	Whitehead, A. L.
Lang, Basil.	Pickard, Ransom.	Whiting, M. H.
Lang, Wm.	Pollock, W. B. I.	Williamson-Noble, F. A.
Lawford, J. B.	Pritchard, Eric L.	Wilson, David.
Laws, W. G.	Quick, H. E.	Wood, C. G. Russ.

Also an anonymous contribution, post-mark "Kingston Hill, Oct. 7," contained two postal orders. Mr. Leslie Paton will be glad if this contributor will communicate with him, as he gave no name or address.

ABSTRACTS

I.—SYPHILIS

(1) **Fuchs, A.** (Vienna).—**Rare syphilitic affections of the eye.** (**Über einige seltene luetische Erkrankungen des Auges.**) *Zeitschr. f. Augenheilk.*, Bd. LVIII, SS. 315-345, May, 1926, and Bd. LIX, SS. 213-264, July, 1926.

(1) In two long and detailed papers **Fuchs** proposes to add to the ocular manifestations of specific infection two new clinical entities, and amplifies our pathological knowledge of a third.

1. *Keratitis Linearis Migrans.*

Igersheimer has classified the atypical forms of specific interstitial keratitis thus:

(*a*) Annular keratitis.
(*b*) Keratitis with linear opacities running radially.
(*c*) Punctate keratitis.
(*d*) Phlyctenular keratitis.
(*e*) Gummatous keratitis.

To these Fuchs proposes to add a sixth—*keratitis linearis migrans*—a very rare condition, but one which presents a definite and typical clinical picture. Compare Collomb, "migratory superficial keratitis," *Brit. Jl. of Ophthal.*, Vol. VIII, p. 133).

He describes two cases of the condition in detail, and mentions a third which resembled them in appearance, but in which the characteristic progress of the disease was not verified since the patient was not kept under observation. The two cases were both females, aged 16 and 49 years. The syphilitic origin of the disease seems undoubted; both suggested hereditary infection, both had a positive Wassermann, both had anterior choroiditis, and the cornea of the other eye was affected with a typical interstitial keratitis.

The characteristic feature of the condition is a linear opacity starting in one quadrant of the cornea, and travelling slowly across it to the opposite quadrant. The opacity is situated deeply in the substance of the cornea, and it is intensified by a precipitate deposit on the posterior surface, which, however, shows no difference in level detectable by the slit-lamp. As the linear opacity travels across, these precipitates migrate in company with it. The band of opacity, which is seen by the slit-lamp to be made up of isolated white lines, stretches from limbus to limbus; it takes about six months to creep across the cornea in linear fashion, and in doing so different parts travel at different rates, so that its shape varies from time to time. As it progresses it leaves the cornea behind it clear, but in this area transient opaque spots sometimes appear, having a structure and position in the substance of the cornea similar to the line itself.

2. *Retino-choroiditis Diffusa Luetica.*

The histology of this somewhat rare condition, first described by Förster (1874), is dealt with in detail. The case from which the description is drawn was a man, aged 59 years, in whom the disease came on ten years after infection. The main symptom was a marked diminution of the visual fields, of which only a small central area for white remained. During life this seemed somewhat anomalous since the macula appeared ophthalmoscopically to be the part most severely affected; but pathological examination showed a minute region here which had remained normal. From his histological study, for details of which the original should be consulted, Fuchs concludes that the trouble began in the retina,

not in the choroid. In the former the inner layers appeared to be affected first, and the outer layers only later, but in those areas showing advanced stages of the disease the outer layers were invariably affected most.

3. *Neuritis Papulosa.*

Fuchs defines a new clinical entity, which he proposes to call neuritis papulosa. It is a unilateral affection occurring in syphilitic subjects within the first two years after infection, wherein the anterior segment of the eye is apparently normal. It is characterized by an exuberant mass of exudate in relation to the papilla, accompanied by profuse and frequently repeated haemorrhages resulting in deep clouding of the vitreous, in which vision is diminished to the bare perception of hand movements. After a chronic course and under the influence of anti-syphilitic treatment, the condition eventually clears up to a very large extent, leaving permanent pathological residua, but at the same time a useful amount of vision.

He describes four cases of the condition, and from the literature he cites six which he considers fall into the same category, thus making ten in all. These six are: Liebreich (*Atlas der Ophthalmoskopie*, T.X, Abb. 1, 1863) described as Retinitis Syphilitica; Scheidemann (*Arch. f. Ophthal.*, 1895, I) described as Gummatous newgrowth at the disc with "kolossale Perivaskulitis"; Gutmann (*Centralbl. f. Augenheilk.*, 1907), and Mylius (*Klin. Monatsbl. f. Augenheilk.*, 1913, I), similarly described; and Igerscheimer (*Syphilis u. Auge*, SS. 282, u. 441) two cases, the one described as Papillo-retinitis, and the other as Exudative Papillitis.

The primary focus is a circumscribed syphilitic infiltration of the papilla which results in the massive formation of exudate, which protrudes as an enormous grey, yellow, or white mass with sharply-defined edges into the vitreous, and terminates by anchoring itself in a patch of choroiditis somewhere on the retina. Elsewhere in the fundus there is an accompanying chorio-retinitis, leaving atrophic patches with pigmented deposits. There are many small white or yellow spots scattered over the retina, grouped especially under the retinal vessels; a constant feature is a star-shaped figure at the macula, differing from the appearance in albuminuric retinitis in that it is composed of grey rays, seen with difficulty, caused by folding of the retina; and sometimes there are regular stripes near the disc, caused by folding of the internal limiting membrane due to retinal oedema. There are numerous retinal haemorrhages, apart from which the vessels are little affected; and the vitreous is very clouded.

The disease comes on soon after infection (shortest case four months; longest, two years), and runs a very long chronic course.

It finishes up with appearances resembling retinitis proliferans, where a narrow process of connective tissue stretches from the disc to a patch of atrophy towards the periphery : as this shrinks, however, detachment of the retina does not appear to occur, due presumably to its fixation peripherally in an atrophic patch.

The interference with vision is very great, and the fields show sector defects and scotomata. Under anti-syphilitic treatment the prognosis is not bad in spite of the severity of the disturbance : in two of the cases useful vision returned after many relapses, and after the vitreous had cleared up; in one normal vision returned; and one only resulted in blindness.

W. S. DUKE-ELDER.

(2) **LeRoux, H. (Caen).—A case of syphilitic tarsitis.** (**Sur un cas de Tarsite syphilitique.**) *Arch. d'Ophtal.*, September, 1926.

(2) Syphilitic inflammation of the tarsus is sufficiently uncommon to justify the record of individual examples. The patient, a male, aged 50 years, had been under treatment for two months when he first came under **LeRoux's** care.

The right upper eyelid was dusky red, much enlarged, covering the upper half of the cornea so that the eye appeared to be half closed. The lid was of wooden consistency and could not be everted. The conjunctiva generally was congested, without excessive secretion. There was no pain, merely a little discomfort. In addition, there was, in the right temporal region, an area the size of "a two-franc piece" of ulceration of the skin, which had been diagnosed as epithelioma, and treated by X-rays. The right prae-auricular gland was enlarged. The patient denied venereal disease and stated that his general health had always been excellent. A Bordet-Wassermann test was strongly positive. Intravenous administration of novarsenobenzol once weekly was prescribed and Gibert's syrup given by mouth. After the sixth injection the tarsitis was completely cured, and the cutaneous ulceration wholly cicatrized.

Three types of syphilitic tarsitis are usually described :

(1) Marginal type, accompanied by ulceration, leading to deformity of the lid margin and partial or complete destruction of the lashes.

(2) A type characterized by circumscribed thickening, at the site of which deep ulceration soon develops.

(3) Diffuse swelling of the tarsus of one or more of the eyelids developing slowly and painlessly, the lid becoming very hard and resistant to palpation; eversion becomes impossible. If cut into the cartilage is found transformed into a lardaceous tissue with scanty blood supply. LeRoux's case belongs to this category.

This manifestation of syphilis is most common in the tertiary stage. If treated early and vigorously it usually yields readily and leaves no deformity.

J. B. LAWFORD.

(3) **Guy, W. H. (Pittsburg).—Interstitial keratitis in congenital syphilis.** *Jl. of Amer. Med. Assoc.*, November 6, 1926.

(3) **Guy** found 160 cases of interstitial keratitis among 2,536 syphilitic patients, or about 6 per cent. This incidence is much higher than that found by previous authors. Females accounted for 59 per cent., and males for 41 per cent., figures differing little from those given by Holmes Spicer and Cunningham. The earliest age of onset was one week and the latest 39 years. The age period of greatest incidence was from five to ten years, the same as that given by Holmes Spicer. In six of the 160 cases the attack was precipitated by trauma.

The Wassermann reaction in 144 cases was 2 to 4 plus; in six cases the reaction was 1 plus or entirely negative. In these latter cases the patients presented other well-marked signs of syphilis, or their parents or brothers and sisters did so. It would seem therefore that the Wassermann reaction is diagnostic but not pathognomonic.

As regards the pathology the author points out the similarity of the histological observations to those of late syphilis, in both of which there is a paucity of spirochaetes to be found, and in both of which we are dealing with a gummatous type of process.

The treatment is divided into local, general, and anti-syphilitic. The local treatment calls for no remark; the general treatment includes dental attention when indicated, and the patient's varying weight is carefully noted, which should increase; anti-syphilitic treatment includes: (*a*) iodides in all cases, on account of the histopathologic nature of interstitial keratitis resembling a gummatous condition; (*b*) arsenic compounds intravenously or intramuscularly; (*c*) mercuric chloride intra-muscularly.

In addition to clinical cure of patients an attempt is made to obtain a negative Wassermann reaction after each of three successive courses of treatment, to be followed by a year of observation, at three-month intervals. Treatment should be intermittent to avoid the development of arsenic- and mercury-fast strains of spirochaetes.

As regards the results of treatment the visual results were satisfactory. The second eye was involved during treatment in only three cases among 58 of the group that were unilateral when treatment was begun. Only four recurrences occurred.

A. F. MACCALLAN.

(4) **Ivanoff, G. (Geneva).—The serum diagnosis of ocular affections of syphilitic origin by the flocculation methods of Sachs-Georgi, Meinicke (M. T. R.) and Dreyer-Ward, as compared with the Bordet-Wassermann reaction. (Séro-diagnostic des affections oculaires d'origine syphilitique par les méthodes de floculation de Sachs-Georgi, de Meinicke (M. T. R.), et de Dreyer-Ward, comparées a la réaction de Bordet-Wassermann.)** *Rev. gén. d'Ophtal.*, November, 1924.

(4) The title of this article indicates its scope. Since 1908 a great effort has been made to replace reactions depending on haemolysis by reactions depending on direct flocculation. The physical modification which specific serum causes in colloidal suspensions is their precipitation, and a method has been sought to make this precipitation evident. This is a great advantage for the work is very much simplified thereby. The only important reagents are the suspected serum and the antigen, so that the animals necessary for the Bordet-Wassermann reaction are eliminated, expenses are reduced, and time is economized. Of the numerous flocculation procedures the three named in the title appear to be the most important and these have been systematically compared by Ivanoff with the Bordet-Wassermann reaction. The details are too technical for this journal: the conclusions seem to be the important thing so far as ophthalmic surgeons are concerned.

(1) The flocculation reactions undoubtedly reveal a disturbance in the physico-chemical composition of luetic sera and are therefore specific for syphilis.

(2) They appear to be less sensitive than the Wassermann reaction and do not possess the certainty of the latter.

(3) Their use runs fairly parallel with the method of Wassermann. Since they have advantages both as regards technique and cost they may be considered as procedures which are complementary in the serum diagnosis of syphilis.

(4) We may, then, make use of them in the serum diagnosis of ocular affections on condition that they are always compared with the Bordet-Wassermann reaction. The reactions should be carried out in well-equipped laboratories and in close relation to the clinic.

If, by the fourth conclusion, the author means that in every case in which these reactions are employed the Wassermann should be used as well, it is clear that expense will be increased rather than diminished. What is intended is, probably, that other workers should continue to compare the two types of reaction in order to obtain further evidence of their relative values.

ERNEST THOMSON.

(5) **Stokes, Dr. John H. (Philadelphia).—The Principles of Syphilo-therapy as applied to the eye.** *Arch. of Ophthal.*, May, 1927.

(5) **Stokes's** paper opens with a warning against regarding syphilis as a purely regional disease. He finds that specialists in fields other than that of venereal disease "make comparatively ineffective syphilotherapists to-day, for their point of view is apt to be local and restricted . . . ." also "they think symptomatically rather than systemically, palliatively rather than curatively." The ophthalmologist in particular has seen the misapplications and deficiencies rather than the good effects of modern treatment, and so does not appreciate what really can be accomplished for the patient with ocular syphilis.

There are two basic principles in modern syphilotherapy: (1) treatment should not be begun with shock-producing drugs such as arsphenamine, until the entire condition of the patient with reference to syphilis has been fully evaluated by a complete examination; (2) syphilis of a special structure should be treated as part of the general disease. Treatment with arsphenamine does three things: (1) it produces a flare-up of the disease (Herxheimer reaction) when first given, which may be damaging or fatal if unrecognized involvement of a vital structure exists; (2) it produces hypersensibility and a fulminating relapse if stopped too soon; (3) it produces healing and fibrosis so rapidly that there is little time for functional adaptation in the structures most seriously involved. In order to avoid (1)—a bad Herxheimer reaction—patients with severe and acute lesions should have a preparatory course with slower-acting drugs and graded arsphenamine dosage. In order to avoid (2), it is essential to continue the arsphenamine for a period sufficiently long to destroy the spirochaetes and not leave groups of them ready to proliferate, as soon as the drug has disappeared from the blood. The consequences of (3)—rapid fibrosis—were first observed in the liver, and it is probable that a similar process is responsible for the rapid development of blindness in some cases of tabes, treated by arsphenamine. It is therefore necessary in these cases also to have a long preparatory period with slow-acting, non-fibrosing drugs, producing "a proper *crescendo* between the *pianissimo* beginnings that prevent shock and fibrosis and the *fortissimo* ending that produces lasting results to the great benefit of the patient." With regard to the effect of various drugs: arsphenamine, which attacks the spirochaete direct, is responsible for therapeutic shock; mercury which acts by stimulation of cellular resistance, and iodide which causes lysis of granulomata, do not produce flare-ups. Bismuth lies midway between mercury and arsphenamine. It will thus be seen how a proper sequence in the use of drugs combined with a

proper selection of vehicle, mode of administration and dosage, can secure results unobtainable by rule-of-thumb methods.

The author is not greatly impressed by local treatment, *e.g.*, intraspinal injections, and finds that it is being slowly superseded as general treatment becomes more effective. Factors other than the primary cause must also be considered, and means should be taken to eradicate focal infections, secure rest and so on. Of the arsphenamines, 606 is the most effective though also the most difficult to use. It should, however, be employed in ocular syphilis "when a minute and difficultly accessible lesion may be responsible for serious damage in a short time." Under-dosage with an ineffective arsphenamine (neoarsphenamine) at irregular and overlong intervals for an insufficient series of injections forms the explanation of many disappointments and failures. Mercury in ocular syphilis should be administered daily by intramuscular injection or by inunction and not by the mouth. In a rapidly advancing process, where arsphenamine cannot be used at the outset, its combination with a soluble mercurial (the succinimide or bichloride) given intramuscularly may perform veritable miracles. The points about iodide are as follow:

Experimental work tends to show that small doses are more effective in elevating general resistance to syphilis. Clinically, however, it is found that a high concentration in the blood is required to produce penetration of the drug into parts of the body which are difficult of access. The author seldom prescribes less than 15 grains of potassium iodide t.i.d. and usually gives 50 grains t.i.d., not infrequently 100, and at times even 250 or 500 grains t.i.d. Intravenous administration of sodium iodide is useful in neurosyphilis. Interstitial keratitis calls for intensive treatment by the simultaneous use of arsphenamine intravenously, mercury succinimide intramuscularly and liberal doses of potassium iodide by the mouth, followed up by bismuth and arsphenamine with inunctions and iodide between courses. By such means the disease, if seen early, can be limited to one eye in all but a few cases.

F. A. WILLIAMSON-NOBLE.

(6) **Fuchs, Ernest.—Ocular manifestations in cerebral syphilis, tabes, and general paralysis. (Manifestaciones oculares de la tabes y la paralysis general.)** *Arch. de Oftal. de Buenos Aires*, June, 1927.

(6) **Professor Fuchs** has given a series of ten lectures in Buenos Aires, of which nine transcripts are being printed. The first résumé deals with syphilis and parasyphilis and was read to the Argentine Medical Association.

While the correlation of syphilitic signs and symptoms has

been proceeding during the past centuries, and earlier diagnosis has been made possible of recent years, the manifestations have changed from dermal to visceral and neural. The contrasting aetiology of dermal and neural syphilis has been diversely explained: two types of spirochaetes have been postulated, the dermal attacking primitive peoples, the neural the more civilized. The greater prevalence of parasyphilis in towns is explained in two ways:

(1) The more intelligent are more prone to neural involvement.

(2) Early treatment before the exanthem predisposes to parasyphilis. The skin rash is believed to produce antibodies protecting the nervous tissues. Is the safeguarding of the race a menace to the individual?

The spirochaete in cerebral syphilis is meningeal and perivascular, "mesodermal," and is therefore amenable to circulatory therapy. In parasyphilis it is in the actual nervous "ectodermal" tissue, and drugs administered by mesodermal routes cannot reach it. Meningeal spirochaetosis may occur in the first few weeks of the infection with pain in the head and hyperaemia of the disc, vision being unaffected. Prostitutes and tertiary syphilitics are more liable to cerebral lues than to parasyphilis; the one condition never leads to the other.

The pseudo-Argyll Robertson pupil, generally unilateral, occurs in complete oculomotor paralysis, and is due to the naturally more facile response to accomodo-convergence, the attempt at which, though impossible, produces reciprocal sympathetic inhibition and dilator relaxation.

Tabetic muscular paralyses are nuclear and their transient nature suggests the likelihood that they are due to syphilitic toxin rather than to the spirochaete. The levator palpebrae is most frequently affected. A tabetic can temporarily compensate for his ptosis or squint by voluntary effort; he does not suffer extremely from the discomfort or vertigo consequent on diplopia. Tabetic ptosis varies with conjugate deviation, the palpebral aperture widening when the patient looks to the opposite side and narrowing with the glance to the same side as the lesion, by nuclear spread of the impulse, active or inhibitory, to the internal rectus.

A paracentral scotoma appears sometimes (5 per cent.), but the concentric contraction commences and becomes extreme to the side of this, so that the remnant of field bordering it is a mere bridge over a sector defect. The chiasma may rarely be attacked by syphilitic toxin, as also by that of disseminated sclerosis, producing bitemporal hemianopsia. The affinity of this toxin for the nerve bundle linking the superior corpus quadrigeminum with the third nucleus explains the Argyll Robertson pupil. The spirochaete could not do such slight and selective damage.

Antiluetic therapy cannot ameliorate the degenerative optic atrophy; the author is not convinced by the contention of others that treatment makes it worse. Against parasyphilis it is ineffectual, being prevented access to the nerve tissue by the neuroglia. Wagner's febrile treatment, for which the malarial parasite is now employed as its effects are controllable, is based on the assumption that spirochaetes cannot survive 40 to 41 degrees centigrade.

D. STENHOUSE STEWART.

II.—MISCELLANEOUS

(1) **Discussion on birth injuries of the eye.** *Trans. Ophthal. Soc., U.K.*, 1926.

(1) **Comyns Berkeley,** in the opening paper, said that he had hitherto believed that birth injuries to the eye were rare, though Lequeux states that in eyes examined 24 hours after birth, disturbance of some sort is present in 25 per cent. of cases, in this order: paralysis of muscles, corneal lesions, retinal haemorrhages. Paul found retinal haemorrhages in 20 per cent. of normal births, in 40 per cent. of premature births, and cases of non-instrumental, protracted labour, and in 50 per cent. of cases of contracted pelvis. Injuries may be prevented under certain conditions by anticipation of difficult labour before it occurs, and by care and intelligence in terminating the labour. Laceration of the eyelids, contraction of the palpebral fissure, laceration of the lacrymal duct, exophthalmos, injury to the external rectus, luxation and avulsion of the eyeball, crushing of the eyeball, luxation of the lens and corneal injuries may be due to pressure from a blade of a forceps. Fracture of the skull or laceration of the tentorium may produce an intracranial haemorrhage, followed by ptosis of the upper eyelid, paralysis of the external rectus, or a combined paralysis of the sixth and seventh nerves. Fracture of the skull may also involve an injury to the optic and other nerves in their course through foramina or fissures to the eyeball. The great congestion of the head and face which is sometimes present at the end of a prolonged, but otherwise, normal labour, or when the umbilical cord is coiled tightly round the neck, may result in oedema of the lids, retrobulbar haematoma leading to exophthalmos, haemorrhage into the anterior chamber, or retinal haemorrhage. In repeated vaginal examinations the cornea may be injured, and most cases of avulsion of the eyeball are due to gross carelessness in such circumstances. Such injuries, however, with the exception of retinal haemorrhages, appear to those engaged in midwifery to be rare. This is supported by the figures of de Wecker, Truc, and Wolff. It is probable that as

difficult labour due to contracted pelvis is now being anticipated in so many cases, these eye lesions are becoming rarer.

(2) **Ernest Thomson** gave the following list of birth injuries :— Dislocation, extrusion, avulsion, or evulsion ; corneal injuries, fractures and dents of the skull in the orbital region, including the lacrymal bones. The attachments of the eye may be severed by fractured bone, and tears of the skin and conjunctiva and general bruising may occur. Haemorrhage may occur into the conjunctiva, subcutaneous tissues, or orbit. In the latter case, if profuse, it produces exophthalmos. Intracranial haemorrhage (also discussed by Buchanan). Paralysis of the third, sixth, seventh, and sympathetic nerves. The injuries most likely to escape notice at the time of birth are haemorrhage within the eyeball or within the cranial cavity. Retinal haemorrhages occur with comparative frequency in normal, and even in premature labour. Cataract may occur as a birth injury. It is incomplete, unilateral, and lamellar, and may be sector-shaped. Nystagmus for which no definite cause can be assigned is often seen by those who deal with large numbers of school children and may be due to injury at birth. Fundus changes may be absent. Right-sided nystagmus has been produced experimentally by injury to the left cerebral peduncle (Mangold and Löwenstein) and unilateral nystagmus would appear to depend on injury to some fibres in the peduncle. Squint may be due to birth injury, especially when the external rectus seems weak. Sympathetic paralysis as a result of birth injury has been recorded. It is possible that certain conditions, not hitherto associated with birth injury, may sometimes conceivably come into that category. The most important is myopia, especially congenital unilateral myopia. There are also to be considered retinal detachment, hole at the macula, choroido-retinal atrophy at the macula, angeoid streaks in the retina, buphthalmos, unilateral aniridia, posterior lenticonus, oxycephaly, and anterior staphyloma.

(3) **Leslie Buchanan** said that he intended to limit his remarks largely to injuries affecting the eye indirectly rather than directly. In 32 per cent. of all haemorrhages there were gross exudations inside the cranium, and in 20 per cent. tears of the tentorium cerebri or cerebelli. Apart from congenital idiocy and large paralyses and contractures, other sequelae of intracranial haemorrhage may lead the parent to consult an ophthalmic surgeon, such complaints being common as "not taking notice," "the eyes do not keep steady," etc. The history of the labour is not so important, in such cases, as the history of the child a few minutes after birth, because damage may occur in a child born easily and naturally, and the signs of the damage may be of brief duration, such as a few twitchings of limbs. On the other hand, intense asphyxia after birth is important as a possible cause of

haemorrhages. Cuts and bruises of the head, haemorrhagic effusion under the scalp, and undue mobility of bones may indicate damage to the scalp, with which intracranial or intraorbital damage is often associated. The use of forceps indicates a considerable degree of violence and torsion of the head, while in cases of after-coming head the tendency to damage inside the head is possibly greater than otherwise. Illustrative cases were then quoted.

(4) **Frank Juler** said that he had examined the fundi of 158 newborn infants at Queen Charlotte's Hospital during the first eight days after birth, and found retinal haemorrhage in 14. Later, appreciating the rapidity with which such haemorrhages may absorb, he examined 58 in the first 24 hours, finding haemorrhages in nine. The appearances are as follow: haemorrhage usually abundant, spread out in thinnish sheets in the nerve fibre layer, and confined to the posterior pole. Sometimes large dark clots are present. The thin sheets and small flecks usually disappear within a week. "The frequency of the haemorrhage and persistence of the dense circular haemorrhages at the macula suggest that we have here a cause of defective macular vision of various types, in which ophthalmoscopic evidence of anatomical defect might range from quite obvious changes, such as choroido-retinal atrophy to conditions in which there is no visible lesion."

The cause of the haemorrhage is most likely the excessive pressure to which the head is subjected in its passage through the pelvis, leading to congestion of the veins which drain the cerebral sinuses.

"Abnormalities of the labour which tend to increase the cranial pressure appear to exercise little effect on the incidence of retinal haemorrhage."

(5) **Arthur W. Ormond** said that certain cases suggest that instrumental birth and the difficulties of prolonged labour may be a cause in producing (*a*) a marked degree of anisometropia, (*b*) a condition where in one eye the amblyopia is so profound that it is not likely to be the result of any amblyopia ex anopsia as in ordinary squint, (*c*) definite scarring of the cornea, with splits of Descemet's membrane, (*d*) certain cases of congenital nystagmus, (*e*) anomalous conditions of the extra-ocular muscles producing paralytic squints in children, (*f*) atrophic patches and pigmentary areas, the result of haemorrhages.

(6) **J. Rowan** mentioned three cases with bands of opacity in the cornea, marked astigmatism, and very bad vision (even with correction) in one eye, the other eye having full vision.

(7) **E. Treacher Collins** quoted cases giving definite evidence of myopia as a sequel to birth injury.

(8) **A. J. Ballantyne** said that there was general agreement that birth injuries to the eyes are less frequent in hospital practice than they used to be. He then described a form of birth injury in which

there is a permanent detachment of part of Descemet's membrane from the cornea.

(9) **T. H. Whittington** said that injuries could occur in rapid labour without instrumental interference.

G. G. PENMAN.

(2) **Beaucamp, C. (Hamburg).—The treatment of ocular tuberculosis by the internal administration of the partial antigen of Deycke. (Über die innerliche Behandlung der Augentuberculose mit Partialantigenen von Deycke.)** *Zeitschr. f. Augenheilk.*, Bd. LIX. SS. 290-300, July, 1926.

(2) "The Partial Antigen of Deycke" (*Zeitschr. f. Tuberkul.*, XL, 3; *Münch. med. Woch.*, 1924, 17; *Die Tuberkul.*, 1925, 2), which is administered orally, has been used by **Beaucamp** in a series of 50 cases of tuberculosis of the eye, embracing lesions of the orbit, the cornea, the iris, the choroid, and the retina. The general conclusion he comes to is that the new medicament is a valuable therapeutic agent. Its main advantages are the ease and convenience of its administration by the oral route, and the absence of general reaction as evidenced by a rise of temperature. The antigen can be used subcutaneously, but it would seem to be effective when given by the mouth when other methods fail. Tuberculous iritis and tuberculous kerato-conjunctivitis have shown the most satisfactory response in Beaucamp's hands.

W. S. DUKE-ELDER.

(3) **Cox.—Headache of nasal origin.** *New York State Jl. of Med.*, April 10, 1925.

(3) **Cox's** paper is of interest to ophthalmologists in as far as a differential diagnosis between headaches of ocular and nasal origin is concerned. The author points out that the frequency of headache as a symptom of nasal abnormalities is due to the common nerve supply, by the trigeminus, of the nose and accessory sinuses, and of the dura mater. He subdivides the *non-inflammatory* affections into:

(1) *Pure pressure cases* due to terminal nerve pressure resulting from deflected septum, hypertrophied turbinates or adhesions between the two. The resultant pain is mainly localized to the nasal bridge, orbit and temple, is worse in the mornings, and the sufferer is usually of a type possessing a low reserve of nervous endurance. The author records several cures of headache of years' duration by the correction of such abnormalities.

(2) The so-called *vacuum frontal headache*, which is described as a low-grade constant pain, worse in the mornings, and aggravated by near work, unrelieved by glasses. Ewing's sign, *e.g.*, tenderness on pressure over the upper inner angle of the orbit, is frequently present. The condition is produced by a

narrowing of the frontal sinus outlet into the middle meatus by means of an enlargement of the bulla in front, or processus uncinatus behind, or merely by a deflection of the septum.

(3) *The nasal (Meckel's) ganglion neuroses.* Slade, of St. Louis, has described the following syndrome occurring in such cases. The pain is generally felt at the root of the nose, in the orbit and upper jaw and may extend down the shoulder on the affected side, as far as the fingers. There may also be present, salivation, a perverted sense of taste (metallic) and scotoma scintillans. The immediate temporary relief of pain following the direct application of cocaine to the ganglion, serves to differentiate between a neurosis and an irritation, the result of sphenoiditis.

In dealing with the *inflammatory* nasal conditions the author notes the greater ease in arriving at the under-lying cause of the accompanying headache. An examination of the nerves is usually more illuminating, while swelling of the eyelids, exophthalmos, and paresis of various ocular muscles assist in the diagnosis.

In conclusion the author refers to the uncertainty of the locality of pain due to an affection of any one of the nasal sinuses but notes several suggestive areas, *e.g.*, the occiput in sphenoidal, the cheek and upper teeth in maxillary, and the course of the supra-orbital nerve, in frontal disease.

E. MAXWELL.

BOOK NOTICES

Applied Refraction. By HOMER SMITH. Pp. 130. Edinburgh: E. and S. Livingstone. 1927. Price, 15s.

The keynote of this book is found in the introduction: "The personal equation governs the selection of lenses and the psychic element dominates the scientific." The author insists on the importance of repose of the body and mind, both in the patient and in the surgeon, and insists that tact and perseverance are essential to good work. He says "the refractionist is born and not made."

He illustrates a special test chart which can be used under varying degrees of illumination, also for testing the light-sense and for selecting the tint required by hypersensitive eyes. It is an ideal instrument, but of course a rather expensive luxury. He makes no mention whatever of retinoscopy as an aid to sight-testing, and although he uses the ophthalmometer he seems to rely almost entirely on subjective testing. This he combines with an exaggerated employment of cycloplegics. He says any patient who has any evidence of eye strain, be she seven or seventy, must be examined under full cycloplegia. Notwithstanding the most

careful and laborious testing under these conditions, he insists that the post-cycloplegic testing is always a necessary sequel, and he devotes a long chapter to the matter. The cycloplegic he uses both for old and young is homatropine and cocaine. We teach here that the use of the cycloplegic is to overcome spasm of the ciliary muscle, and that this spasm is rarely present in persons over forty or forty-five years, and again, we teach that the post-cycloplegic testing is generally only necessary when hypermetropia is present, and then occupies a very short time.

He goes very minutely into the treatment by bifocal glasses and gives much useful information as to the centreing, etc., which advice is perhaps more useful to the optician than the surgeon.

The book is evidently not intended for the beginner, but the advanced student will find much good advice which, although not new, is put in a very readable form.

It is interesting to learn that the author's experience has taught him to believe in most of the teachings which many of us have been enforcing for years.

Eleventh Annual Report of the Ophthalmic Section, Department of Public Health, Cairo, 1923. Cairo: Government Press, 1927.

This report contains a brief summary of the developments of the ophthalmic hospitals of Egypt and contains the important statistics which have been given annually for many years.

At the end of 1923 there were 23 hospitals, of which 18 were built and designed for the purpose, and 5 were travelling hospitals under canvas. They are staffed by Egyptian ophthalmologists, who attended at the hospitals daily from 8 a.m. till 1 p.m., and engage in private practice in the afternoon.

One hundred and seventy-four thousand patients were seen at the hospitals, and 82,466 major and minor operations were performed. It was found that 1.73 per cent. of the cases suffered from primary glaucoma; for which the Elliot operation of trephining with iridectomy was performed in 643 cases, and simple iridectomy in 503 cases. Operations for trichiasis and entropion numbered 36,720; the most frequent variety of operation was Snellen's (actually first described by Streatfeild). The number of operations for extraction of senile cataract was 911.

Among the most important features of the work is that the ophthalmic medical officers in addition to their hospital duties carry out an examination of the pupils of the Government Primary Schools, treating those affected with eye diseases and prescribing spectacles for those who require this aid to vision. The number of pupils examined during the year was 7,551, of whom more than 90 per cent. were infected with trachoma. As the result of daily treatment at the schools by the ophthalmic medical officers the

percentage of pupils with the more serious stages of the disease (MacCallan's stages 2 and 3) were reduced from 28 per cent. to 11 per cent.

The percentage of patients, blind in one or both eyes, who were seen among the new cases has gradually fallen from about 19 per cent. in 1911 to about 11 per cent. in 1923. The total number of blind eyes seen was more than 22,000. In the majority of cases the cause was acute conjunctivitis, though over 2,000 eyes were blind from absolute glaucoma.

The pathological work which is carried on at the Memorial Ophthalmic Laboratory on behalf of all the hospitals is of importance, seeing that during the year 39 cases of malignant tumours of the eyelids and eyes were examined microscopically, and a diagnosis made by the pathologist. As has been noted in previous reports a very large proportion of the patients applying for treatment are under ten years of age.

Technique histo-bacteriologique oculaire. By Y. d'Autrevaux. Préface du Dr. V. Morax. Pp. 153. Paris: Gaston Doin et Cie.

This work is one of the series published under the auspices of Professor Morax (who contributes a short preface) as the Bibliothêque d'Ophtalmologie. The present book is a most useful and complete laboratory manual for the ophthalmic pathologist. The author has had many years practical experience in the laboratories of the Service ophtalmologique de Lariboisière and in the clinique nationale des Quinze-Vingts. The book, though primarily intended for the use of ophthalmic surgeons desirous of becoming sufficiently proficient in microscopical technique to undertake examination of their own specimens, is in no sense cursory or elementary. Full details are given, not only of the more usual routine laboratory methods but also of a variety of special staining methods, which should prove useful to the general pathologist, neurologist, and bacteriologist. The book commences with a short section on methods of obtaining material (biopsies, etc.) and then goes on to deal seriatim with methods of fixation, dehydration and embedding, section cutting and staining. These are dealt with in detail and include special stains for nervous tissues, differential stains, and bacteriological methods. There are sections on impregnation, decalcification, depigmentation, etc., and on the preparation and mounting of museum specimens. Each section contains in addition to technical details, a paragraph on the commonest causes of failure, which should prove useful. The last chapter deals with methods of examination of the aqueous, a procedure possibly too often neglected in the laboratories of this country.

Anatomical, Phylogenetical and Clinical Studies of the Central Nervous System. By B. BROUWER, Professor of Clinical Neurology, University of Amsterdam. Pp. 67, with 16 illustrations. Published for the Johns Hopkins University. *Baltimore*: The Williams and Wilkins Co. 1927. Price, 11s. 6d.

The Herter lectures, founded in 1902 by Dr. and Mrs. Herter of New York "for the formation of a memorial lectureship designed to promote a more intimate knowledge of the researches of foreign investigators in the realm of medical science," have previously appeared in the *Bulletin of the Johns Hopkins Hospital*. It has now been decided to issue them as separate books. The present book, the first of the series, contains the lectures delivered by Professor Brouwer at Baltimore in 1926. The lectures are three in number: (1) the projection of the retina in the brain; (2) pathology of sensibility; (3) the significance of phylogenetic studies for the neurologist. In the first lecture, the substance of which has already been reviewed in our columns, when published in *Brain* (*Brit. Jl. of Ophthal.*, Vol. X, p. 613, 1926), Brouwer alludes to the difficulty of giving a lecture in a language not his own and in one, which he wittily adds, he fears may not be that of his auditors. He adds that he hopes to make up for any deficiencies by the plates and lantern slides he has brought for exhibition. Although, with the occasional exception of a clumsily-turned phrase, there is no evidence of any linguistic defect, the book naturally suffers, as do all lecture reports from the absence of the lecturer's personality and illustrative plates. In the second lecture the author discusses the work of Head, Rivers, and others and expresses the opinion that while the views of Head on protopathic and epicritic sensibility contain a good deal of truth sufficient attention has not been paid to the centripetal side of the autonomic nervous system. He illustrates the value of an exact knowledge of the organization of sensibility to the clinician by the diagnosis of the location of tumours of the spinal cord with the aid of "dermatoms." This term, derived from the investigations of Bolk, Sherrington, Kocher, and others denotes the fact that each root and each segment of the spinal cord belongs to a well-known localized part of the skin. Unfortunately the limits of these dermatoms are not quite precisely defined. The use of X-rays in conjunction with an intraspinal injection of lipiodol here renders much assistance. In his third lecture the author discusses the value of phylogenetical studies for the neurologist beginning with a brief but very instructive account of some modern ideas on the cerebellum and ending with some suggestive examples derived from pathological processes.

The illustrations and bibliographies that accompany the lectures are excellent and the work should prove of considerable use to those of us who, although not neurologists, feel the need of some simple account of modern neurological methods and ideas. We regret that it should not have been possible to issue such a very brief work at a lower price.

CORRESPONDENCE

NOTES OF A CASE OF KERATITIS FOLLOWING MUMPS

To the Editor of THE BRITISH JOURNAL OF OPHTHALMOLOGY

SIR,—On April 14, 1927, I saw a woman, aged 29 years. She had contracted mumps fourteen days before and the eye condition started four days before I saw her, though there had been discomfort in the eye for five days. The right eye only was affected, and she was still in bed with mumps. At first sight it seemed a typical interstitial keratitis. The right eye was red and watery, with very little pain. Ciliary injection very marked. The whole right cornea was cloudy with interstitial opacity and there was marked "striate keratitis." The iris appeared not to be involved and the aqueous was perfectly transparent. The iris dilated rapidly under homatropine and cocaine. Vision: right 1/60; left 6/6.

Tension normal, and no tenderness on feeling tension, indeed no complaints of pains of any kind; no fundus reflex. Wassermann negative. Left eye normal externally and internally. Five days later the condition was very much improved, the cornea being nearly clear, with hardly any ciliary injection. Fundus normal. V.=6/24. Thirteen days after I first saw her (17 days from onset) traces of ciliary injection, cornea perfectly transparent, iris normal; indeed a normal eye with visual acuity of 6/6. The patient was seen on September 25, when everything was found to be satisfactory.

I remained completely "at sea" as to the nature of the case until I read the note in the *Brit. Jl. of Ophthal.* of July, 1927, when it was apparent that it was an exactly similar type of case to that recorded.

Yours truly,

J. BIGGAM, Major, R.A.M.C.

ALDERSHOT,
September, 1927.

NOTES

Appointment

Miss IDA C. MANN has been appointed Assistant Surgeon to the Royal London Ophthalmic Hospital.

* * * *

White Oak Schools, Swanley, Kent

THE following is an abstract from the report of the visiting ophthalmic surgeon, Mr. E. Treacher Collins, for 1926 to 1927.

This institution was opened in 1903 for the treatment of children with ophthalmia; that is to say all children suffering from eye diseases in which there is discharge from the eyes, and in July, 1924, facilities were extended to children suffering from interstitial keratitis. Cases are received through the Metropolitan Boards of Guardians or through the L.C.C. Schools, and by agreement also from any extra-Metropolitan Board of Guardians. These cases are frequently referred from the ophthalmic hospitals, or the ophthalmic department of the general hospitals to either the Board of Guardians or the L.C.C. doctor. In other instances periodical visitations are made to the schools of Central London district by an ophthalmic surgeon. During the year 1926, 348 children with eye diseases were admitted. The affections from which they suffered were as follow:

Trachoma	38
Follicular conjunctivitis	41
Mucopurulent conjunctivitis...	15
Chronic conjunctivitis	73
Phlyctenular conjunctivitis	88
Marginal blepharitis	54
Lacrymal obstruction	1
Ulcer of the cornea	1
Interstitial keratitis	37

354 children have been discharged cured.

In 1911, there were 103 cases of trachoma admitted from the poor-law schools. During the past year only seven such cases were admitted and five of these occurred in one district, namely, Poplar. There has also been a striking decrease in cases of other forms of ophthalmia. In 1910, 534 cases were admitted with other forms of ophthalmia than trachoma, whilst in 1926, only 106 cases were received. In 1926, more than half of the children admitted to White Oak came from the extra-Metropolitan areas and it is to be hoped that these facilities will be extended. Thirty-seven cases of interstitial keratitis were admitted as against 24 in the previous year and it seems therefore that the excellent

facilities which White Oak now offers are becoming more appreciated.

The following is the average stay in the hospital for some of the diseases:

	Days.
Trachoma	596
Follicular conjunctivitis	108
Mucopurulent conjunctivitis...	81
Chronic conjunctivitis	100
Phlyctenular conjunctivitis	139
Marginal blepharitis	248
Interstitial keratitis	100

FUTURE ARRANGEMENTS

1927

November 4.—North of England Ophthalmological Society at Bradford.

November 11.—Royal Society of Medicine, Section of Ophthalmology.

December 2.—North of England Ophthalmological Society at Leeds.

December 9.—Royal Society of Medicine, Section of Ophthalmology (Clinical Meeting).

1928

January 13.—Royal Society of Medicine, Section of Ophthalmology.

February 3.—North of England Ophthalmological Society at Newcastle-on-Tyne.

February 9.—Royal Society of Medicine, Joint Meeting of Sections of Ophthalmology and Neurology.

March 2.—North of England Ophthalmological Society (jointly with the Midland Ophthalmological Society) at Sheffield.

March 9.—Royal Society of Medicine, Section of Ophthalmology (Clinical Meeting).

March 30.—North of England Ophthalmological Society at Liverpool.

May 11.—Royal Society of Medicine, Section of Ophthalmology.

June 8.—Royal Society of Medicine, Section of Ophthalmology (Annual).